Report From Agency

REPORT TO LEGISLATURE

NR 105, Wis. Adm. Code
Surface water quality criteria

Board Order No. WT-35-07
Clearinghouse Rule No. 07-110

Basis and Purpose of the Proposed Rule

The Department is proposing to update water quality criteria for 18 toxic substances in ch. NR 105 to be consistent with federal requirements. There are two initiatives that led to the proposed updates.

In 2000, U.S. EPA formally objected to Wisconsin's aquatic life toxicity criteria for four of the 18 substances. U.S. EPA indicated that Wisconsin's criteria were not as protective as the federal criteria for copper, nickel, selenium and endrin. The proposed changes will ensure federal approval of the criteria for those substances.

In recent years, U.S. EPA has updated water quality criteria for protection of human health for the 14 other substances. Wisconsin's current human health criteria for those substances needs to be modified to ensure consistency with the federal criteria. Those substances include 1,3-dichlorobenzene, 1,3-dichloropropene, 3,3'-dichlorobenzidine, antimony, arsenic, cadmium, chlorobenzene, chromium +3, chromium +6, total chromium, cyanide, ethylbenzene, hexachlorocyclopentadiene, and toluene.

Of the 18 substances proposed for updating, the most significant change in terms of impacts on dischargers will be for copper. In most, but not all, state waters the proposed criteria are about 15% more stringent than those currently in ch. NR 105, meaning facilities with copper limits already in WPDES permits will likely see their limits become about 15% tighter. This will not result in a significant change to the operation of those facilities, but there may be several permits that will need copper limits that currently do not have them.

Of the 580 municipal and industrial point source discharge permits that have been evaluated for the discharge of toxic substances, 58 currently contain copper limits based on acute criteria and 41 contain limits based on chronic criteria (some permits contain both). Of those 99 limits, 79 are projected to be up to 15% tighter while the others either are relaxed or are unchanged. It is projected that 21 additional limits would be needed in permits (6 acute, 15 chronic), but since the changes in criteria are fairly small, this would mean the discharges were close to needing limits already and therefore this should not be a significant burden.

Other substances have criteria that are proposed to change much more than those for copper, nickel being the primary example with the proposed criteria being about 60% more stringent. However, discharges of nickel are rarely at levels that approach current or proposed criteria. As a result, impacts on permitted discharges will be minimal. It is estimated that of the 580 dischargers, only one has a current permit limit that will become more stringent and one more will need a limit for the first time. Of the remaining substances, one permittee will need a selenium limit and none of the others will need to be regulated if future effluent data are consistent with those already submitted as part of WPDES permit applications.

Arsenic is also worthy of mention here because of updated human health criteria. Arsenic is potentially controversial because it is one of several substances with human cancer criteria that are more stringent than the federal drinking water standards**.** For those permittees whose water supply is groundwater containing high levels of arsenic – namely in eastern Wisconsin – compliance with effluent limitations may

be difficult if the discharge is directly to Lake Michigan waters. Although the criteria proposed in this rule revision are more stringent the drinking water standards, they are still about 10% less stringent than the criteria currently published in ch. NR 105. Regardless, it is not probable that these changed criteria will make compliance with limitations any easier. Dischargers affected by arsenic limitations may need to request a variance to the water quality standard using the procedures of s. 283.15, Wis. Stats.

In inland waters, the proposed criteria are about 75% more stringent than in the existing ch. NR 105. The proposed criteria are still much greater than levels found in typical point source discharges and therefore no new permit limits are expected for discharges that aren't directly to the Great Lakes. The proposed criteria were modified following a public workshop held during December of 2006 in Stevens Point.

Summary of Public Comments

(Betsy Lawton, Midwest Environmental Advocates, and Linda Holst, USEPA Region V) Selenium
The proposed 5 ug/L criterion should also apply to waters classified as Warm Water Forage Communities in order to meet the goals of the Federal Clean Water Act for protection and propagation of a balanced fish and aquatic life community.

Response: The study that was used by the U.S. Environmental Protection Agency (EPA) as a basis for the 5 ug/L criterion involved testing of rainbow trout and bluegills in a North Carolina lake. The proposed revision only applied the 5 ug/L criterion to waters classified as Coldwater Communities or Warm Water Sportfish Communities because those two fish species are considered to be sport fish. However, recent history of development of aquatic life toxicity criteria in ch. NR 105 has typically set Warm Water Forage Community criteria equal to those for Warm Water Sportfish Communities because of the limited amount of toxicity test data available. The proposed code was revised to apply the 5 ug/L criterion to Warm Water Forage Communities as well. This criterion is not expected to have any additional impact on WPDES-permitted dischargers because there are none currently discharging selenium to waters classified for Warm Water Forage Communities.

(Linda Holst, USEPA Region V) Selenium
The proposed 5 ug/L criterion should also apply to waters classified as Limited Forage Fish and Limited Aquatic Life Communities

Response: As noted in the previous discussion, the criterion was based on exposures of selenium to rainbow trout and bluegill. Those species are not associated with these two use designations. Data on other aquatic organisms were not used by EPA to develop its nationwide freshwater criteria. For discharges of selenium to those waterbodies, effluent limitations will be calculated based on protection of downstream uses where the 5 ug/L criterion is applied, pursuant to s. NR 104.02(5), Wis. Adm. Code.

Subsequent to this comment and the end of the public comment period, the Department has decided to propose selenium criteria for the Limited Forage Fish and Limited Aquatic Life Community classifications. Those criteria are 46.5 ug/L for both, based on the actual criteria calculation procedures currently contained in s. NR 105.06. If it were not for the North Carolina rainbow trout and bluegill studies, criteria for the other classifications would also be calculated this way, but the studies took precedence due to the lower results. Since the studies did not apply to these waterbodies, though, the applicable criteria reverted to the NR 105 approach, thereby warranting the 46.5 ug/L criteria. It should be noted that acute criteria were not proposed at this time since they were not contained in the GLWQI; the calculated criteria were so much greater than the 5 and 46.5 ug/L chronic criteria that they would not have controlled any point sources anyway.

Only one facility discharging to a Limited Forage Fish or Limited Aquatic Life waterbody has an effluent concentration in excess of 5 ug/L based on current information; that discharge will be regulated by the 5 ug/L criterion at a downstream location. As a result, the 46.5 ug/L criterion is also not expected to impact any point source discharges.

(Linda Holst, USEPA Region V) Endrin

The proposed 0.036 ug/L criterion for waters classified as Limited Forage Fish Communities was in error and the correct criterion should be 0.05 ug/L.

Response: The correction was made. In addition, since criteria for waters classified for Limited Aquatic Life are equal to or greater (less stringent) than those for Limited Forage Fish communities because the Limited Aquatic Life database is a subset of the Limited Forage Fish database, the Limited Aquatic Life criterion was also revised to 0.05 ug/L (from 0.049).

Modifications Made

The proposed code was revised to apply the 5 ug/L criterion to Warm Water Forage Communities as well. The Department has decided to propose selenium criteria for the Limited Forage Fish and Limited Aquatic Life Community classifications. Those criteria are 46.5 ug/L for both, based on the actual criteria calculation procedures currently contained in s. NR 105.06. The proposed 0.036 ug/L criterion for waters classified as Limited Forage Fish Communities was in error and the correct criterion should be 0.05 ug/L.

Appearances at the Public Hearing

January 3, 2008 – Madison

In support:

Mark Surwillo, Heart of the Valley Metropolitan Sewerage District, 801 Thilmany Road, Kaukauna, WI 54130

In opposition – None

As interest may appear:

Dana Ferguson, Alliant Energy, 4902 N. Biltmore Lane, Madison, WI 53718
Michael Ricciardi, Madison Gas & Electric Co., P.O. Box 1231, Madison, WI 53701
Betsy Lawton, Midwest Environmental Advocates, 551 W. Main Street, #200, Madison, WI 53703

January 7, 2008 – Eau Claire

In support – None
In opposition – None

As interest may appear:

Michael Peters, Dairyland Power Cooperative, 3200 East Avenue South, La Crosse, WI 54601
Carol Rollins, Ho-Chunk Nation, P.O. Box 636, Black River Falls, WI 54615

January 14, 2008 – Oshkosh

In support – None
In opposition – None

As interest may appear:

John Kennedy, Green Bay Metropolitan Sewerage District, 2773 Newberry Ave., Green Bay, WI 54302
David Vogl, Del Monte, 600 N. 15th Street, Rochelle, IL 61068
Mark Metcalf, Integrys Business Support, 700 N. Adams Street, Green Bay, WI 54307
Jerry Walters, Village of Whiting, 129 Cedar Street West, Stevens Point, WI 54481

Changes to Rule Analysis and Fiscal Estimate

No changes were required.

Response to Legislative Council Rules Clearinghouse Report

The recommendations were accepted.

Final Regulatory Flexibility Analysis

The Department has determined that the changes to criteria proposed in this rule package will not have a significant impact on small businesses.

WPDES wastewater discharge permits are issued to large and small industries as well as to municipal wastewater treatment systems that may serve businesses in individual communities. These permits contain numerical effluent limitations for toxic substances when warranted under ch. NR 106, following a comparison of reported discharge concentrations to the limits calculated based on criteria in ch. NR 105.

When permits contain effluent limitations, dischargers are assessed fees under programs administered in ch. NR 101. Those fees are based on the mass of the discharge of toxic substances in the wastewater, with the fee rate based on the calculated effluent limitation. Fee assessments will increase if the mass of discharge increases and/or the effluent limitation decreases, and fees will decrease if the mass of discharge decreases and/or the effluent limitation increases. As a result, typically a decrease in the water quality criterion for a substance will mean a decrease in the effluent limitation for that substance, and in turn this will mean an increase in the amount of ch. NR 101 fees that need to be paid for the discharges of that substance. It should be noted that these fees are only charged to permittees that have limits for those substances in their permits.

When more stringent water quality criteria are proposed for any toxic substance, not only will the fees increase for permits that already contain limits for that substance, but if a limit is triggered for the first time in a permit under ch. NR 106, fees would be assessed for the first time as well. Therefore, changes in water quality criteria could have a direct impact on small (or large) businesses with permits containing limits on the affected substance, as well as an indirect impact on businesses located in communities served by a municipal wastewater treatment plant that holds a permit containing limits on that substance. These impacts may be estimated based on historical fees assessed under the ch. NR 101 program.

Of the 18 substances proposed for criteria revisions in ch. NR 105, it is estimated that no discharge permits will be affected for 14 of those substances. This is because the criteria are high enough and/or the discharge levels are low enough that no effluent limitations will be needed in any permit. The only substances for which changes in permit limitations are foreseen are arsenic, copper, nickel, and selenium.

For arsenic, nickel, and selenium, only a very small number of permits will be affected, again because the criteria and limits are high enough and/or the discharge levels are low enough. In those cases, a very small number of permits will even need effluent limitations. Based on current effluent data, it is anticipated that only two permits will need selenium limits, four will need arsenic limits, and six will need nickel limits out of the 580 that have been evaluated for toxic substance discharges as of the end of 2006.

The four permits likely to need arsenic limits (two municipalities, two industries) would actually have their NR 101 fees decrease because the proposed criteria for those sites would increase, although the fee decrease is likely to be small because the changes in criteria are small.

Both of the permittees likely to need selenium limits are for large industries. No small industries are expected to be impacted.

Of the six permits estimated to need nickel limits, only one currently has a limit. For four of the remaining five permits, it is likely that the proposed limits drop out of their permits following submittal of additional effluent data since they are close to the threshold under which permit limits are required in ch. NR 106. Therefore, eventually it is expected that only two permits in Wisconsin would be affected by the changes in nickel criteria although neither of them are a small business. One would have an increase in fees while the other would be getting limits for the first time. The permit getting the new limit is for a large industry and the one with the current limit is for a municipality in southeastern Wisconsin so it may have an indirect impact on small businesses located within the community.

For copper, of the 580 permits that were evaluated for toxic substance discharges at the end of 2006, 58 of them contain limits based on acute toxicity criteria and 41 contain limits based on chronic toxicity criteria (some permits contain both). Of the 58 with acute toxicity-based limits, 12 will see limits increase, 39 will see limits decrease, 6 won't change after rounding, and 1 will see the limit drop out of the permit. These changes take place because the criteria will increase in hard water areas and decrease in soft water areas. Of the 41 permits with chronic toxicity-based limits, 40 will see limits decrease while the other permit will have no change in limits; this is because the chronic criteria will decrease by about 15% in all waters. Given that the changes in criteria are relatively small, though, it is not expected that significant treatment plant construction or upgrading will be necessary to meet the new limits, beyond anything that has already been undertaken to meet current limits.

In addition, it is estimated that another 6 permits will need acute toxicity-based limits and 15 will need chronic toxicity-based limits for the first time. These initial impositions of limits are not expected to warrant major construction or upgrading either; since the dischargers would be barely over the NR 106 threshold for needing limits, it would not normally be expected that these 21 discharges would need to do much to come into compliance with new limits.

The number of permits that would need new or lower permit limits include 52 municipalities, 26 industries, and 7 public or privately owned treatment facilities (such as military, health care, and golf courses). A small number of the 26 industries may be considered small businesses, and the changes in the municipality limits could have indirect impacts on small businesses within those communities. It is estimated that the decrease in copper limits at these 85 facilities would result in about $9,000 in increased State revenues for environmental fees under the NR 101 fee program.